NORTHWOODS JOURNAL – OCTOBER 2020
SPECIAL AUTUMN EDITION

A Free Publication about Enjoying and Protecting Marinette County's Outdoor Life

In This Issue:

Top to bottom: pollinator observations; learning about mammals at Crivitz Youth Inc.; kayaking and canoeing with Peshtigo gym classes on Trout Creek near the school.

Teaching Outdoor Awareness & Discovery (T.O.A.D.) Programs Help Educators During School Re-openings

By Anne Bartels, Information & Education Specialist, Land Information Department

With all the challenges that 2020 has thrown at us, it makes you think about how we have had to change how we normally do things. Going to school, for example. Many folks have had to adjust to the reality of at-home learning and juggling schedules, work, and family life. Education in the era of COVID is different, that is true, but it can still be done in a variety of ways.

As the Information & Education Specialist at the Land Information Department, most of my job is working with the public and teaching about nature. A bit hard to do this spring and summer when we were all trying to socially distance, and avoid gatherings & events. However, with some common sense and super-hygiene awareness, I was able to resume some teaching duties this summer and fall with some schools/homeschools, day care facilities, libraries, and the Marinette REC center.

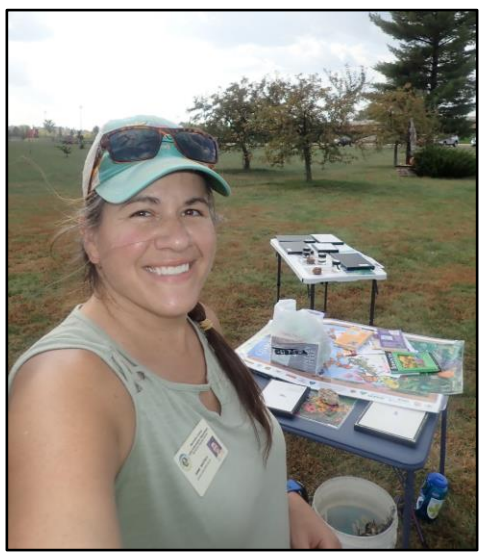
Our "Teaching Outdoor Awareness & Discovery" environmental education programs involve both indoor and outdoor elements, as well as many program props like furs, skulls, replicas, bug jars, and other 'hands-on' tools. I have been spraying down program materials with sanitizer for years pre-COVID, so now I am just more meticulous with it and also offer hand sanitizer afterwards.

At Badger Park pavilion in Peshtigo, tables are spaced and students wear masks as they learn about wildlife species of the forest.

In addition to following schools/facilities' safety rules – like wearing a mask and social distancing – I am doing most programs outside this fall. I do outside programs in winter, as well, as long as the participants are prepared for weather. Outside winter programs include snowshoeing, winter ecology, tracking, and general nature hikes.

At a local day care facility, Pre-K students try to distance while exploring tree parts inside. We went outside to look at trees more closely afterwards.

Above – middle schoolers catch aquatic insects and other invertebrates in small groups. Below – students catch pollinators for observation at a school pollinator garden. The bottom photo shows how tables are spaced for the presentation. Props are sanitized after each program.



As fall moves along, I'll do my best to help educators keep outside learning a priority! See more TOAD photos at left in sidebar. ☺

Pollinator Invitation Garden (P.I.G.) Project 2020 Wraps Up

The 2020 Pollinator garden project has come to a close for the year. In September and into early October, I visited with participants and did 'garden check-ups' to see how the plants did over summer, replaced any plants that didn't make it, and answered questions they had about fall/winter preparations. There are a few folks whose gardens didn't get installed this summer, so I will help them in spring to establish their pollinator gardens.

I will continue to share information with participants over winter regarding native garden care and other information. In 2021 I will revisit everyone and do a 'spring garden check-up'. If COVID prevents my usual spring activities and events as it did in 2020, I will most likely continue the P.I.G. project for a new group of folks over the spring/summer of 2021.

Pollinators visiting a nearby PIG garden helped these pumpkin plants grow a large crop for fall.

The gardens in the next several pictures were installed from late August through mid-September.

Autumn Garden Tips to help Wildlife

From: https://www.discoverwildlife.com/how-to/wildlife-gardening/how-to-prepare-your-wildlife-garden-for-winter/

Most people tend to tidy their gardens in autumn, but often take this to the extreme. They blitz them, removing most of the shelter for wildlife and leaving overwintering invertebrates homeless in the process. You can help wildlife by leaving as much tidying up as possible until the end of winter, and doing so can make your garden look more attractive, too.

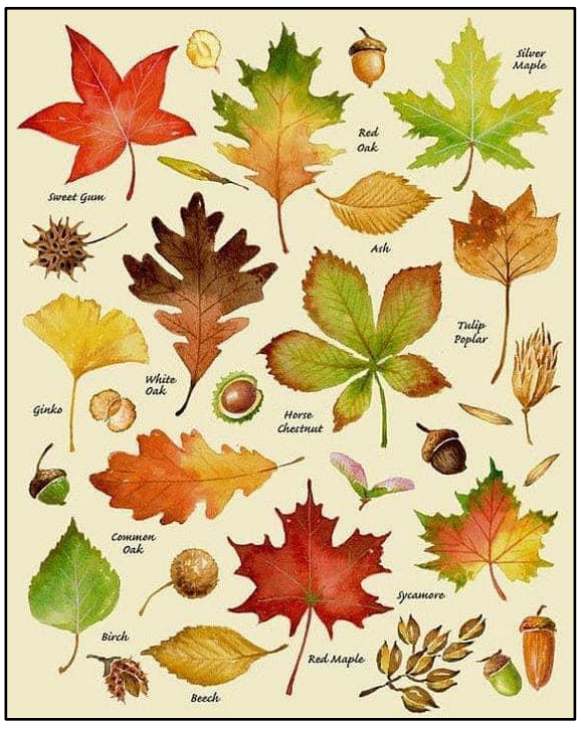
Look around your garden and decide where to add new wildlife features, such as a log pile or pond. Pay special attention to your flowerbeds and shrubs – swap them for species that will attract more animals to your garden. Replace existing ornamental shrubs with native species such as dogwoods, chokecherry, and nannyberry. Doing this now gives the plants time to establish roots, and adds to the overall diversity and interest in your garden next year.

Here are some other things you can do:

- Spread fallen leaves over your flowerbeds. As well as providing a rich mulch, they create a superb foraging habitat for birds in winter. Frogs and invertebrates also like to overwinter among damp leaves.
- Leave dry plant stems standing in the garden - all kinds of insects will crawl inside to spend the winter. When you cut them in spring, leave them in a stack until May to allow all of the overwintering insects to emerge.
- Avoid cutting shrubs/hedges and ivy growing on walls and fences until the end of winter to provide valuable shelter for birds and give them more time to eat the berries.

Why – and How – Do Leaves Change Color in the Fall?

https://dnr.wisconsin.gov/education/fallcolors



The Science of Fall Leaf Colors

Leaf color comes from pigments. Pigments are natural substances produced by leaf cells. The three pigments that color leaves are:

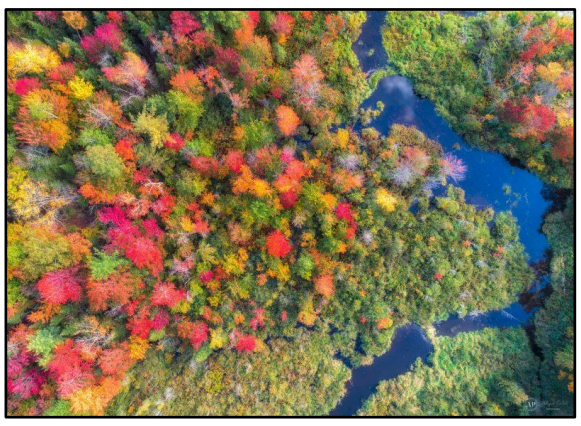
- chlorophyll (green)
- carotenoid (yellow, orange and brown)
- anthocyanin (red)

Chlorophyll is the most important of the three. Without the chlorophyll in leaves, trees wouldn't be able to use sunlight to produce food.

Carotenoids create bright yellows and oranges in familiar fruits and vegetables. Corn, carrots, and bananas are just a few of the many plants colored by carotenoids.

Anthocyanins add the color red to plants, including cranberries, red apples, cherries, strawberries and others.

Chlorophylls and carotenoids are in leaf cells all the time during the growing season. But the chlorophyll covers the carotenoid - that's why summer leaves are green, not yellow or orange. Most anthocyanins are produced only in autumn, and only under certain conditions. Not all trees can make anthocyanin.



How Leaves Change Color

As the Earth makes its 365-day journey around the sun, some parts of the planet will get fewer hours of sunlight at certain times of the year. In those regions, the days become shorter and the nights get longer. The temperature slowly drops. Autumn comes and then winter. *Trees respond to the decreasing amount of sunlight by producing less and less chlorophyll*. Eventually, a tree stops producing chlorophyll. When that happens, the carotenoid already in the leaves can finally show through. The leaves become a bright rainbow of glowing yellows, sparkling oranges and warm browns. **What about red leaves?** Read on.

Do Leaves Change Because of Weather?

Perhaps you've noticed that in some years, the red fall colors seem brighter and more spectacular than in other years. The temperature and cloud cover can make a big difference in a tree's red colors from year to year.

When a number of warm, sunny autumn days and cool but not freezing nights come one after the other, it's going to be a good year for reds. In the daytime, the leaves can produce lots of sugar, but the cool night temperatures prevent the sugar sap from flowing through the leaf veins and down into the branches and trunk. Anthocyanins to the rescue! **Researchers have found out that anthocyanins are produced as a form of protection.** They allow the plant to recover nutrients in the leaves before they fall off. This helps make sure that the tree will be ready for the next growing season. Anthocyanins give leaves their bright, brilliant shades of red, purple and crimson.

The yellow, gold and orange colors created by carotenoids remain fairly constant from year to year. That's because carotenoids are always present in leaves and the amount does not change in response to the weather.

The amount of rain in a year also affects autumn leaf color. A severe drought can delay the arrival of fall colors by a few weeks. A warm, wet period during fall will lower the intensity, or brightness, of autumn colors. A severe frost will kill the leaves, turning them brown and causing them to drop early. **The best autumn colors come when there's been:**

- a warm, wet spring
- a summer that's not too hot or dry
- a fall with plenty of warm sunny days and cool nights

Why Leaves Fall

A tree's roots, branches and twigs can endure freezing temperatures, but most leaves are not so tough. On a broadleaf tree like a maple or a birch, the tender, thin leaves - made up of cells filled with water sap - will freeze in winter. Any plant tissue unable to live through the winter must be sealed off and shed to ensure the tree's survival. As sunlight decreases in autumn, the veins that carry sap into and out of a leaf gradually close. A layer of cells, called the *separation layer*, forms at the base of the leaf stem. When this layer is complete, the leaf is separated from the tissue that connected it to the branch, and it falls. *Oak leaves are the exception.* The separation layer never fully detaches the dead oak leaves, and they remain on the tree through winter.

Evergreen trees - pines, spruces, cedars and firs - don't lose their leaves, or needles, in winter. The needles are covered with a heavy wax coating and the fluids inside the cells contain substances that resist freezing. Evergreen leaves can live for several years before they fall and are replaced by new growth. On the ground, fallen leaves are broken down by bacteria, fungi, earthworms and other organisms. The decomposed leaves restock the soil with nutrients and become part of the spongy humus layer on the forest floor that absorbs and holds rainfall.

You Can Tell a Tree from its Color

You can use the fall leaf color to help identify different tree species. Look for these leaf colors on the trees in your neighborhood:

- Oaks: red, brown or russet
- Hickories: golden bronze
- Dogwood: purple-red
- Birch: bright yellow
- Poplar: golden yellow
- Maple trees show a whole range of colors:
  - Sugar maple: orange-red
  - Black maple: glowing yellow
  - Red maple: bright scarlet

For more information about leaf colors, visit:

- https://earthsky.org/earth/why-do-tree-leaves-turn-red-in-fall
- https://hort.extension.wisc.edu/articles/leaf-color-change-autumn/
- travelwisconsin.com/fall-color-report

Foraging Ovenbird

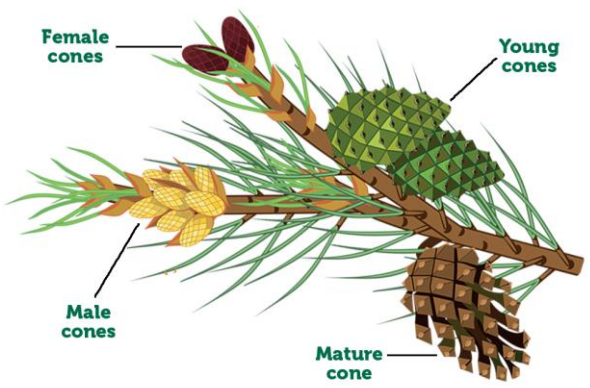
Fun Facts About Pine Cones

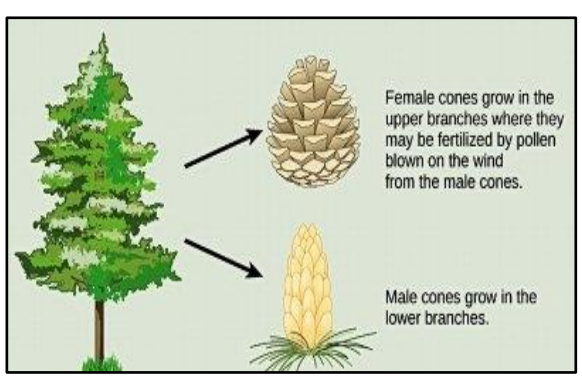
www.canr.msu.edu/news/fun_facts_about_pine_cones

Aside from their decorating uses, pine cones play an important role in nature. Like all plant parts, they have a very specific function in the plant world. Here are some fun facts from Michigan State University Extension about pine cones you might not have known:

- Pine cones only come from pine trees, although *all conifers produce cones*.
- Pine cones and pine trees belong to a group of plants called gymnosperms and date back to prehistoric times.
- Gymnosperms are a group of plants who have naked seeds, not enclosed in an ovary.
- The main function of a pine cone is to keep a pine tree's seeds safe.
- Pine cones close their scales to protect the seeds from cold temperatures, wind and even animals that might try to eat them.
- Pine cones open up and release their seeds when it is warm and it is easier for the seed to germinate.
- Some pine cones, like that of the Jack Pine (below) need a fast hot fire to open and release their seeds. This is called the Jack Pine ecosystem.

- Pine cones can stay on tree for more than 10 years before dropping to the ground.
- All conifers produce male and female cones. Sometimes on the same tree, sometimes not. *The pinecones we see are only the female cones.* The male cones are much smaller and not showy. You may have never noticed them. *The male cones release pollen*, which drifts into the air and eventually finds and fertilizes the female cones.

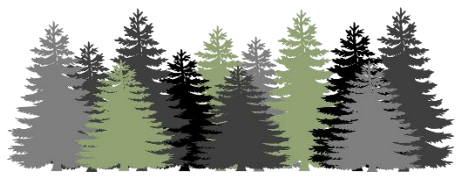




- Pine nuts come from pine cones. Only 20 varieties of pine tree worldwide produce cones with large enough pine nuts for harvesting.
- Pinyon Pines, *Pinus edulis* (which only grow between 6,000 and 9,000 foot altitudes), offer the finest pine nuts in North America. Pinyon pines (below) are native to the desert mountains of California, east to New Mexico and Texas, and north to Wyoming.

- The second part of Pinyon Pine's botanical name, edulis, means "edible" in Latin. It refers to the tasty seeds produced in its 2-inch, roundish, light brown cones that grow in clusters on very mature trees.
- Pine nuts are a good source of thiamine (B1), Vitamin K, magnesium, and protein. They are also one of the best natural sources for manganese, phosphorus and zinc.
- The pineal gland in the brain is named after pinecones because of its shape. The pineal gland controls our body's perception of light, as well as our wake and sleep patterns. It has long been considered our biological "third eye" and "the epicenter of enlightenment."
- Pine cones have been exalted in religious imagery for thousands of years.
- Ancient Romans also associated pine cones with Venus, Goddess of love and fertility.

This article was published by **Michigan State University Extension**. For more information, visit https://extension.msu.edu. To have a digest of information delivered straight to your email inbox, visit https://extension.msu.edu/newsletters.



The Nature of Cones

by Anita Carpenter

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Pine cones enter our lives in many ways - as decorated wreaths, in floral displays and crafted into holiday ornaments. We suspend them as bird feeders packed with peanut butter or suet coated with seeds. We kick them along forest paths and cuss when they litter our lawn or get chewed up in the mower. We watch red squirrels shred them and crossbills meticulously extract seeds with surgical precision.

We've all picked up cones of various sizes and shapes, casually looked at them and then unceremoniously tossed them aside, but do we really know what they are? We use the term "pine cone" to describe any cone from any conifer, but that's not right. Evergreens come in many types: spruce, fir, pine, hemlock, cedar. **They are all called *conifers* because they all bear cones.** We should name the cones for the parent trees - spruce cones, balsam fir cones and so on. (below – Coultier pine cones, from CA).

Each evergreen has two distinct cone types: female and male. The hardened, dark brown cones are the females. These cones consist of a woody stalk surrounded by overlapping, stiff, shingle-like scales. Behind each scale is a *bract*, a small, flat modified leaf. Depending on the tree species, the bract may be hidden within the cone or extend well beyond each scale, like the western Douglas fir cones.

The smaller, inconspicuous male cone (or pollen cone) grows either singly or in clusters, depending on the species. They are usually found on the lower branches. The male cones wither and die shortly after releasing their pollen in the spring, though dried remnants of pollen may remain stuck to the tree for months.

Each evergreen species has its own timetable for flower development, pollination and cone maturation. Only true pine cones take two years to mature. All other evergreen cones mature in the same year they are fertilized. In spring, pine buds begin to grow producing male cones in clusters at the base of new twigs. The female cones appear much later as the twigs grow. Each small gumdrop-sized female cone is soft and green tinged with a purplish red. Its tiny scales are slightly separated.

When the tree is ready to be pollinated, it secretes a small amount of fluid that collects in the narrow crevices between the scales. At the same time, the mature male pine cone releases a heavy dusting of yellow pollen. These primitive plants rely on wind pollination. Enormous quantities of pollen are released on breezes to drift onto roads, ponds, cars, sensitive noses and the waiting female cones.

Each evergreen species produces a uniquely shaped pollen grain that will only reach female cones of its own species. The wind-borne pollen settles on the fluid within the female cone. It gets trapped and drawn into the crevices to rest on the two ovules at the base of each cone scale. Fertilization is usually immediate, but not always. Jack pines are not fertilized until 13 months after the pollen is trapped.

After pollination, the cone scales thicken until

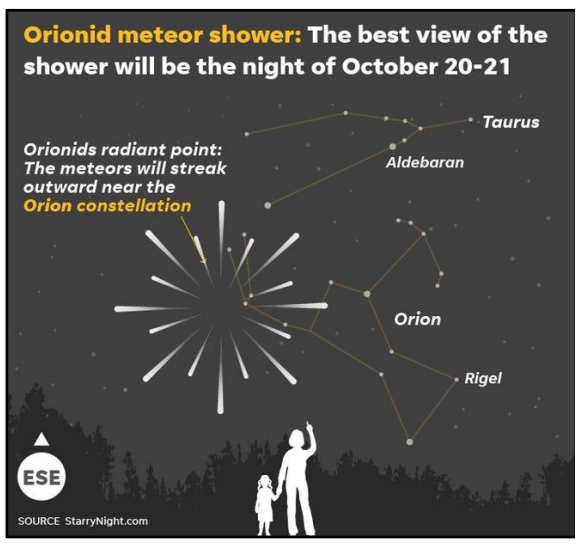
Continued on page 5

Watch for Meteor Showers and "Shooting Stars" this Fall!

https://stardate.org/nightsky/meteors

A **meteor shower** is a spike in the number of meteors or "shooting stars" that streak through the night sky. Most meteor showers are spawned by comets. As a comet orbits the Sun it sheds an icy, dusty debris stream along its orbit. If Earth travels through this stream, we will see a meteor shower.

Although the meteors can appear anywhere in the sky, if you trace their paths, the meteors in each shower appear to "rain" into the sky from the same region. Meteor showers are named for the constellation that coincides with this region in the sky, a spot known as the **radiant**. For instance, the radiant for the Leonid meteor shower is in the constellation Leo. The Perseid meteor shower is so named because meteors appear to fall from a point in the constellation Perseus.



What are shooting stars?

"Shooting stars" and "falling stars" are both names that describe meteors - streaks of light across the night sky caused by small bits of interplanetary rock and debris called meteoroids vaporizing high in Earth's upper atmosphere. Traveling at tens of thousands of miles an hour, meteoroids quickly ignite from the searing friction with the atmosphere, 30 to 80 miles above the ground. Almost all are destroyed in this process; the rare few that survive and hit the ground are known as meteorites.

When a meteor appears, it seems to "shoot" quickly across the sky, and its small size and intense brightness might make you think it is a star. If you're lucky enough to spot a meteorite (a meteor that makes it all the way to the ground), and see where it hits, it's easy to think you just saw a star "fall."

How can I best view a meteor shower?

Get away from the glow of city lights and toward the constellation from which the meteors will appear to radiate. After you've escaped the city glow, find a dark, secluded spot where oncoming car headlights will not periodically ruin your sensitive night vision. Look for state or city parks or other safe, dark sites.

Northwoods Journal Online

Would you like to read current issues of the *Northwoods Journal* online? Go to www.marinettecounty.com and search for 'Northwoods Journal". We can also send you an e-mail reminder when each new issue is posted online. Contact Anne Bartels, Information & Education Specialist at 715-732-7784 or email abartels@marinettecounty.com.

Once you have settled at your observing spot, lie back or position yourself so the horizon appears at the edge of your peripheral vision, with the stars and sky filling your field of view. Meteors will instantly grab your attention as they streak by.

How do I know the sky is dark enough to see meteors?

If you can see each star of the Little Dipper, your eyes have "dark adapted," and your chosen site is probably dark enough. Under these conditions, you will see plenty of meteors.

What should I pack for meteor watching?

Treat meteor watching like you would the 4th of July fireworks. Pack comfortable chairs, bug spray, food and drinks, blankets, plus a red-filtered flashlight for reading maps and charts without ruining your night vision. Binoculars are not necessary. Your eyes will do just fine.

Here are some more links of interest:

- https://skyandtelescope.org/observing/best-meteor-showers-in-2020/
- https://stardate.org/astro-guide/meteors-and-meteorites
- https://www.space.com/
- https://www.greatlakesnow.org/2020/09/aquarius-project-findings-update-meteorite-fragments-lake-michigan/

What's the difference between an asteroid, meteor and comet?

- **Asteroid:** An *asteroid* is a small rocky body that orbits the Sun. Most are found in the asteroid belt (between Mars and Jupiter) but they can be found anywhere (including in a path that can impact Earth).
- **Meteoroid:** When two asteroids hit each other, the small chunks that break off are called *meteoroids*.
- **Meteor:** If a meteoroid enters the Earth's atmosphere, it begins to vaporize and then becomes a *meteor*. On Earth, it looks like a streak of light in the sky, because the rock is burning up due to friction.
- **Meteorite:** If a meteoroid doesn't vaporize completely and survives the trip through Earth's atmosphere, it can land on the Earth. At that point, it becomes a *meteorite* (see page 6 about micrometeorites!).

- **Comet:** Like asteroids, a comet orbits the Sun. However rather than being made mostly of rock, a comet contains lots of ice and gas, which can result in amazing tails forming behind them, thanks to the ice and dust vaporizing (comet NEOWISE below).

Pinecones, continued

they are tightly pressed together. As the cone grows, it darkens, hardens and encloses the developing seeds. When the cone is mature and the timing is right, the cone dries out, pops open and releases two seeds per scale, each with a tiny wing to guide its flight.

Each species disperses seeds in a different way. White pines open and drop their seeds late in their second summer, then the cone drops off the tree. Some jack pine cones open naturally, others may wait 10-20 years and only open when exposed to intense fire. White spruce cones open and fall their first winter. Black spruce cones mature in one year, but can remain on the tree for several years releasing a few seeds each year. When balsam fir cones mature the scales and a few seeds flake off over a period of several days to weeks, leaving a bare core on the tree. This particular dispersal method is a welcome invitation to red-breasted nuthatches which can easily extract the balsam fir seeds.

When you are hanging up the holiday lights or looking for a holiday tree, take a good look at the cones. Examine the trees in your yard. Are the female buds patiently waiting for spring? Can you can find the bracts or a few seeds still stuck inside? Can you guess how each cone will disperse its seeds?

An entire textbook of the evergreen classroom may be as near as your front door or back yard. Don't be in such a hurry! Take your time and take a closer look.

Here are some sites of interest about conifers, tree identification, and more information:

- https://conifersociety.org/
- https://dnr.wisconsin.gov/topic/urbanforests/treecenter
- https://dnr.wisconsin.gov/education/treeID
- https://www.eekwi.org/plants/forever-green
- https://www.thespruce.com/difference-between-evergreens-and-conifers-2131029

12 Facts About the First Day of Fall

www.treehugger.com

Well hello, fall! Even though it happens year after year, the arrival of autumn is always a little surprising. Almost as if on a switch, one day late in the summer you feel it – a subtle crispness in the air. And before you know it, it's pumpkin-spice-everything everywhere. We are suddenly swathed in sweaters and wearing boots and bombarded by shades of orange, often even before the thermometer warrants it.

We can thank the autumnal equinox for this shift from sultry summer to cozy fall. And while most of us are aware of when the first day of autumn lands on the calendar, there's more to the equinox than meets the eye.

1. When is the 2020 Equinox?

This year, the autumnal equinox arrived precisely at 9:31 a.m. EDT (1:30 UTC) on Tuesday, September 22. Unlike an event such as New Year's midnight, which follows the clock around the time zones, equinoxes happen at the same moment everywhere.

2. It's Fall, it's Spring!

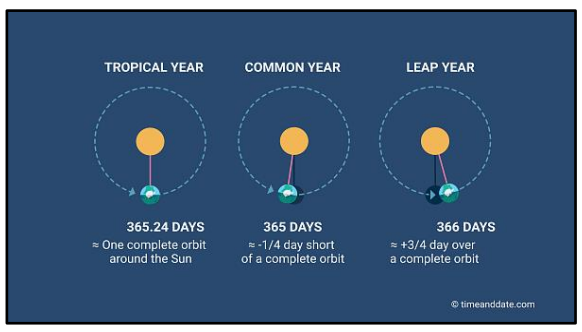
There are two equinoxes annually, vernal and autumnal, marking the beginning of spring and fall. They are opposite for the northern and southern hemispheres – so for those of you in the south, happy spring!

3. It's All About the Celestial Equator

The autumnal equinox happens the moment the sun crosses the celestial equator, which is an imaginary line in the sky that corresponds to Earth's equator. (Old Farmer's Almanac describes it as a plane of Earth's equator projected out onto the sphere.) Every year this occurs on September 22, 23, or 24 in the northern hemisphere.

4. The Leap Year Plays a Part

Because it takes the Earth around 365.25 days to orbit the Sun – and why we have a leap year every 4 years – the precise time of the equinoxes varies from year to year, usually happening around six hours later on successive years. On leap years, the date jumps back an entire day.



5. It Gives Us Longer Nights

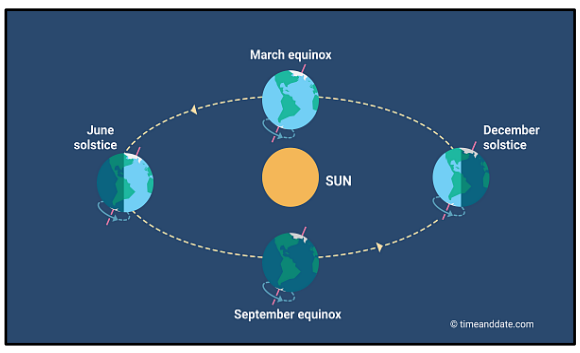
From here on, nights are longer than days and days continue to get shorter until December, when the light will begin its slow climb back to long summer days. Winter solstice is technically the shortest day of the year, while the summer solstice in June boasts the most sunlight.

6. The Meaning of "Equinox"

"Equinox" comes from the Latin words "equi" meaning "equal" and "nox" meaning "night." This implies that there will be equal amounts of daylight and darkness, however, this is not precisely the case.

7. The Equinox Is Not Exactly Equal

This year, the sun rose at 6:44 a.m. EDT on the equinox and set at 6:52 p.m., giving us ~8 minutes of day over night. Although the sun is perfectly over the equator, we mark sunrises and sunsets at the first and last minute the tip of the disk appears. Also, because of atmospheric refraction, light is bent which makes it appear like the sun is rising or setting earlier.



8. What Is The Equilux?

Despite the equinox's name, equal day and night doesn't happen until sunrise and sunset occur precisely 12 hours apart, which depends on a location's latitude; the closer to the equator, the closer it is to the equinox. This day is known as the equilux – from the Latin "equi" for "equal" and "lux" for "light."

9. The Sun Signs Play Along as Well

For the astrology-minded, the morning of the autumnal equinox is when the sun departs Virgo and enters Libra; the scales, how appropriate! According to astrologists, this is a good time for balance and harmony.

10. It Determines The Harvest Moon

As for the other celestial orb we obsess on, the full moon nearest to the autumnal equinox is called the Harvest Moon for the luminosity that affords farmers the ability to work late. It's also been called the Full Corn Moon. The Harvest Moon is usually associated with the September full moon, although if the October full moon happens to fall closer to the date, she takes the title. This year's Harvest Moon happened on Friday, September 13.

11. The Northern Lights Will Be Extra Visible

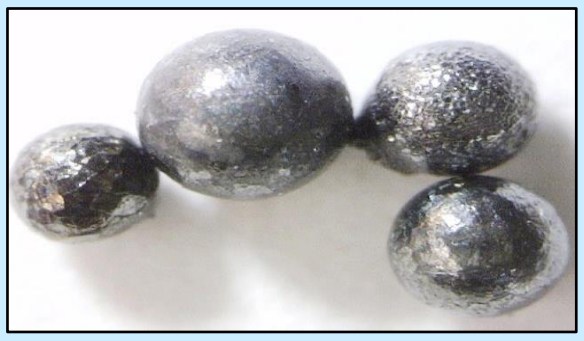
With more nighttime darkness, there is simply more hours for viewing; if you are close to the Arctic Circle in the summer, there is too much daylight. But the aurora is also stronger around the equinox because of the planet's 23.5° tilt and the magnetic field of the solar wind.

12. It's The Perfect Time To Get Your Bearings

This year on the equinox, as happens every year, the sun will rise precisely due East and will set precisely due West. Everywhere on Earth, except at the North and South Poles, there is due east and due west point on the horizon; by observing the sun as it travels along this path on September 22, no matter where you are, you can see where that point is for your location. Pick a landmark, make a mental note, and enjoy the knowledge that while so much in this world is in flux, the sun is constant and will return to its perfect East and West on the days of equinox.

Finding Micrometeorites!

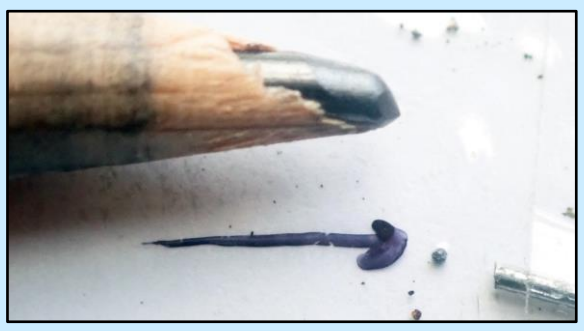
Occasionally you can see a brief flash of light crossing the night sky - a meteor. During their passage through the atmosphere, they usually disintegrate into smaller pieces. They slow down in the atmosphere and slowly fall to Earth as a dust - micrometeorites.



There are 2 main classes of micrometeorites - rock micrometeorites and iron micrometeorites. It's hard to isolate and distinguish rock micrometeorites from other forms of dust and debris. Iron micrometeorites are easier to collect because you can use magnets to concentrate them.

Basically the bigger area you can collect dust from the higher chances of finding micrometeorites. Time and weather may be important too. The chances of finding micrometeorites in the few days following a meteor shower are higher than other times of the year. Driveways and parking lots are examples of places to look.

In the photo below, dust and debris was collected from a residential driveway using a magnet, and then a field microscope was used to look for micrometeorites – they are spherical, shiny, and may be pitted. They look similar to ball bearings or bb's (as in photo above). The micrometeorite is at the tip of the black arrow – the pencil tip shows how small it is.



To find micrometeorites, you'll need: collection dust/debris, a microscope, a note card to make a sorting tray, a note card to save your micrometeorites, two toothpicks, and white glue.

Procedure:

- Fold up the edges on one note card to make a sorting tray, and add dust/debris.
- Place it on the platform of the microscope and focus on the material.
- Use a toothpick to sort through the material, looking for tiny spheres.
- When you find one:
  - carefully isolate it from the rest of the material
  - put a small drop of white glue on a piece of scrap paper
  - touch one end of a toothpick to the glue, to get a tiny amount on the tip of the toothpick
  - touch the tip of the toothpick with the glue onto the micrometeorite to pick it up, and transfer it to another note card.
  - rub the micrometeorite off the toothpick onto the note card – the glue should hold it in place – and keep looking.

Happy Micrometeorite Hunting!

- https://www.iflscience.com/space/how-hunt-micrometeorites/ - more about how to find micrometeorites
- https://www.facebook.com/micrometeorites/ - *Project Stardust*, a micrometeorite research study
- https://www.sciencefriday.com/articles/up-on-the-roof-a-handful-of-urban-stardust/

Frost Protection this Fall

Scott Reuss, Marinette County UW-Extension
(Excerpts published in mid-September, 2020)

Plants facing the most risk are the ones which are most temperature sensitive, such as basil and melons. However, anything in the tomato family, any vine crop, and any beans are also likely to face damage potential. Protecting these types of plants may extend their growing season for a couple more weeks, giving them the opportunity to ripen properly and increase both yield and quality of the fruits produced on these plants.

Start the process of frost protection by analyzing your garden space. Ask yourself which plants are worth protecting, and which areas are capable of being protected properly with the materials you have available to you. You may be better served to harvest melons and basil plants, especially if you know that your location is in a cool pocket. The reason for this statement is that these plants face damage around 35 degrees, and normal protection methods (tarps, blankets, etc.) usually only provide a few degrees of protection. The more complete the coverage, with fewer holes, seams, etc. that allow the insulated air to escape, the better frost protection can be achieved.

For other sensitive crops, **arranging materials that hold air and act as insulation will likely provide the necessary protection**. The best situation is to be able to have some type of frame or support that keeps the tarps, sheets, or blankets off of the plants themselves. The tarps usually get down to the air temperature around them, so any plant material touching them is likely to face damage. The air holding area under the tarp is where it stays warmer and is where you want most of your plant material.

Focus your efforts on the plant types facing damage. Root crops, cabbage family crops, and crops which are fully mature do not need protection right now. They can handle colder temperatures without facing damage, or can simply be harvested to prevent cold exposure. Tomato and pepper plants with a number of immature fruits are probably highest priority, as well as winter squash and pumpkins which have immature fruits. Later in fall, we can use other methods, such as adding water buckets under the tarps, to give protection to less sensitive plants and keep them alive during even colder nights.

If you have questions about frost protection, harvesting or storage of fruits and vegetables, or any other agricultural or horticultural issue, contact Scott Reuss, Marinette County Agriculture/Horticulture Agent. He can be reached via e-mail at scott.reuss@wisc.edu or through the Marinette office of UW-Madison, Division of Extension, in the courthouse, at 715-732-7510.

A Spawning Success: Fish Elevator Helping Lake Sturgeon Numbers

https://www.wpr.org/spawning-success-fish-elevator-helping-improve-lake-sturgeon-numbers

An operation at a dam on the Menominee River that relocates sturgeon upriver has helped biologists in their efforts to improve sturgeon populations and has given researchers a new way to track whether those sturgeon are spawning.

About 400 sturgeon were relocated farther upstream between 2015 and 2019 thanks to an elevator installation at the Menominee Dam, located about two miles upriver from the mouth of Lake Michigan at Green Bay. Bypassing the dams means the sturgeon are able to access their historical spawning sites - an important achievement for the sturgeon whose numbers dropped to the hundreds in the past few centuries.

Lake sturgeon number about 1 percent of their historical abundance, said Patrick Forsythe, an associate professor of biology at the University of Wisconsin-Green Bay who focuses on aquatic ecosystems and fish populations in the Great Lakes. Overharvesting and pollution have been particularly devastating to the populations, as well as dams that have blocked the sturgeon from getting to their spawning sites. Adult sturgeon exhibit homing behavior, which means that they return to spawn in the streams where they were born.

Sturgeon move in an elevator up about 20 feet into a holding tank.

It's important to get the sturgeon to their spawning sites so that their spawn have a long section of river to live in during the first summer of their lives. The water at the spawning site is cleaner, warm, food-rich and mostly protected from larger predator fish, said Rob Elliott, a fish biologist with the U.S. Fish and Wildlife Service based in Green Bay.

"If they remain confined to only the lower three miles of river below the dams, then their level of reproduction is very limited," he said.

Forsythe is part of a group that is studying the migration of the sturgeon that have been moved farther upstream with the help of the elevators. The goal in his research has been to answer whether the sturgeon will stay upstream once they've been moved there, and if they'll go all the way back to their spawning locations.

Forsythe said that answers to those questions lie in the fish's genes. "We're able to use genetic techniques to be able to tie a parent to an offspring, to a larvae that we collect in the spring at the time that spawning happens," he said.

Forsythe said that this past spring, researchers were able to catch enough larvae that they will soon be able to tie to their parents and determine where they're located — whether they're staying upriver or moving back down to Lake Michigan.

"Once we get through this winter and we're able to run the genetic analysis, we feel pretty confident that we should be able to find a few larvae that were produced by the fish that were passed with the elevator," he said. Elliott said the behavior of the sturgeon upriver has been exactly what biologists hoped for.

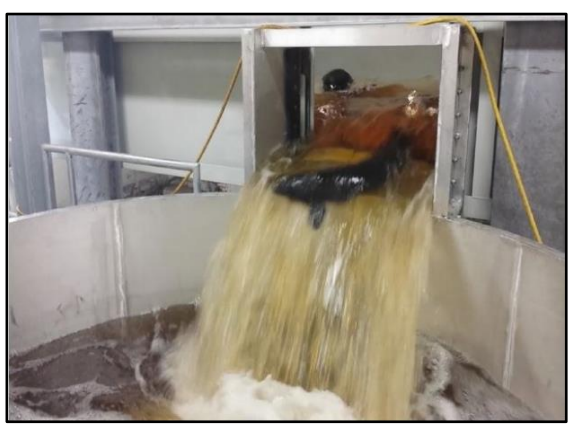
More than 85 percent of those who were migrated have continued to move upriver more than 20 miles to higher quality spawning habitat. After the spawning season, they move back down the river, pass through the two dams and return to the lower river to feed. "Some of these fish that were passed upriver during the first few years of operation of the fish lift are now returning to the fish lift again during their next spawning migration and are being passed upriver for a second time," he said.

Sturgeon exist in about eight rivers around Lake Michigan. But the site at Menominee River is challenging for them, because the dams are so close to the mouth of Lake Michigan. That's why a fish elevator was installed there - to help sturgeon around the barrier and to their spawning sites, Elliott said.

Elliott said that fish elevators have been used for a long time to move fish above barriers, but it's new for sturgeon in the Great Lakes. There are two dams on the Menominee River that effectively block sturgeon from getting to their spawning ground upriver. Historically, sturgeon moved up the Menominee River about 80 miles to Sturgeon Falls. That was as far as they went, Elliott said.

The Menominee Dam and the Park Mill Dam on the Menominee River are separated by about a mile and begin about two miles upstream from the mouth at Green Bay, Lake Michigan. This situation was ideal for the installation of fish elevators, which Elliott said don't work everywhere. Specific conditions need to be met for them to be effective.

The sturgeon will come into the elevator that lifts them, in water, about 20 feet, and then spills them into a holding tank. From that holding tank, they're transferred into a transport trailer that takes them upstream an additional mile. This bypasses the second dam, which is a preferable method to building two fish elevators, Elliott said.



Lake sturgeon moves into a holding tank.

Elliott said during the first few years of operation, the goal was to pass 90 adult sturgeon each year: 30 females and 60 males. In fall 2019, that number was increased to 200 sturgeon per year because of how successful the program was proving to be. Elliott said another 100 fish could be transferred by October this year.

Bat Week 2020! An Annual, International Celebration of the Role of Bats in Nature

https://batweek.org/

BAT WEEK
October 24-31, 2020

Bat Week is an international, annual celebration designed to raise awareness about the need for bat conservation. Bats are amazing creatures that are vital to the health of our natural world and economy. Although we may not always see them, bats are hard at work all around the world each night - eating tons of insects, pollinating flowers, and spreading seeds that grow new plants and trees.

Humans need bats. Worldwide, there are more than 1,400 species of bats - that's almost 20 percent of all mammal species. Bats live almost everywhere on Earth except the most extreme desert and polar regions. So, no matter where you live, it is almost certain that there are bats living near you.

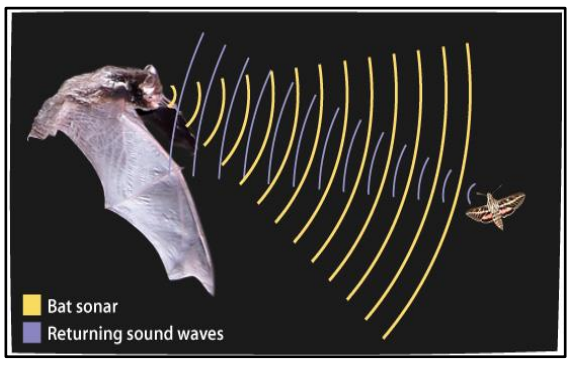
Bats are amazing animals that are **vital to the health of our environment and economy.** Although we may not always see them, bats are hard at work all around the world each night. Most bats in North America eat insects, including moths, beetles, aquatic insects, and flies. A single bat can eat up to its body weight in insects each night. **Eating all these insects helps protect our food crops and forests from insect pests,** saving farmers and forest managers billions of dollars each year.

Consider these fascinating bat facts:

- **Bats come in all shapes and sizes**, from the tiny, adorable bumblebee bat that weighs less than a penny to the big, beautiful flying foxes that can have a wingspan of up to six feet.

- **Bats are the only mammal that can truly fly** (although some other mammals "glide"). A bat's wing is actually a modified hand - similar to yours.

- **Contrary to popular belief, bats actually have good eyesight** (similar to that of humans), but for most species, their main technique for navigating or locating prey is using **echolocation** (not all species echolocate!): emitting very high- pitched sounds that bounce off obstacles in their path, like trees, other bats, buildings, and food - delicious insects. But, not all bats that echolocate are insectivores!



- **Bats eat lots of different things**. Although almost 70% of bat species feed primarily on insects, some bats are carnivorous, eating meat like rodents, frogs, and fish. Only three species of bats feed on animal blood, with two of these species specializing on bird blood. Many other bats eat pollen, nectar or fruit - these bats are vital for pollinating flowers and spreading seeds that grow new plants and trees.

Benefits of Bats

Bats are one of the most important animals in our environment. With more than 1,300 different species in the world, bats are diverse in both how they look and how they keep ecosystems balanced.

Insect Control - In North America, bats primarily eat insects - lots of insects. One bat eats thousands of insects each night. Since bats eat so many moths, beetles, flies and mosquitoes, we can use fewer pesticides. That makes our backyard, neighborhood and food healthier and saves farmers billions of dollars.

Pollination - Bats in the Southwest U.S. and other warm ecosystems around the world help plants grow by pollinating flowers. When nectar-drinking bats stick their long-noses into flowers, they become covered in pollen that they then bring to other flowers, helping plants reproduce. Through pollination, bats help grow fruits such as bananas, avocados and agave.

Seed Dispersal - Fruit bats are key in planting new tropical trees. Each night, fruit bats eat more than double their body weight in fruit. As they fly from tree to tree, their guano falls to the ground, helping to spread seeds across long distances. Thanks to bats in tropical parts of the world, we can enjoy fruits like pineapples, figs and mangoes.

Technology, Medicine, and Fertilization - Bat flight and echolocation have inspired advances in sonar, airplane maneuverability and navigation. Scientists studying vampire bats have created anti-clotting medication to help stroke victims. And bat guano is used as a powerful fertilizer worldwide, offering economic and agricultural rewards.

Lights Out for Migrating Birds

https://birdcast.info/science-to-action/lights-out/

Every spring and fall, billions of birds migrate through the US, mostly under the cover of darkness. This mass movement of birds must contend with a dramatically increasing but still largely unrecognized threat: **light pollution**.

Light attracts and disorients these migrating birds, confusing and exhausting them as well as making them vulnerable to collisions with buildings, not to mention other urban threats like cats and toxins. An estimated 365 – 988 million birds die in collisions with buildings annually, including a number of species of high conservation concern.

The BirdCast team joins a growing international Lights Out efforts already underway, including in over 30 cities in North America, in proposing and implementing a simple solution: turning off unnecessary lighting during critical migration periods.

Scarlet Tanager

Turning off lights dramatically reduces hazards from attraction to and disorientation by light, allowing birds to safely proceed with their migratory journeys. And further, Lights Out does more than save birds, it saves energy and money! The Environmental Protection Agency highlights energy as the largest operating expense for commercial buildings. Reducing energy use by shutting off lights for migration season makes environmental sense and fiscal sense.

Lights Out is a win-win for birds and cities, and the people who love both.

Blackburnian Warbler

CAMPERS CORNER

Marinette County Parks

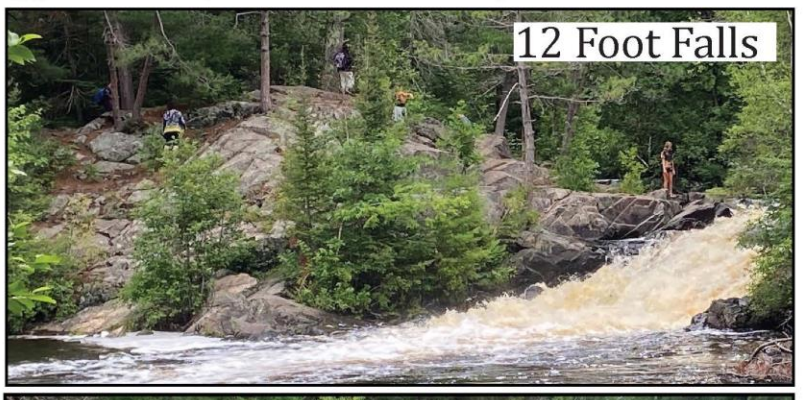
This is a great time to be outdoors! Marinette County is bursting at the seams with parks, water falls, rustic roads, lakes, rivers and streams! Fall is the perfect time to sightsee in a cozy sweatshirt, walking boots and right along side your furry friend. The bugs are gone, the heat has subsided and the walking paths are crisp with leaves with every step you take.

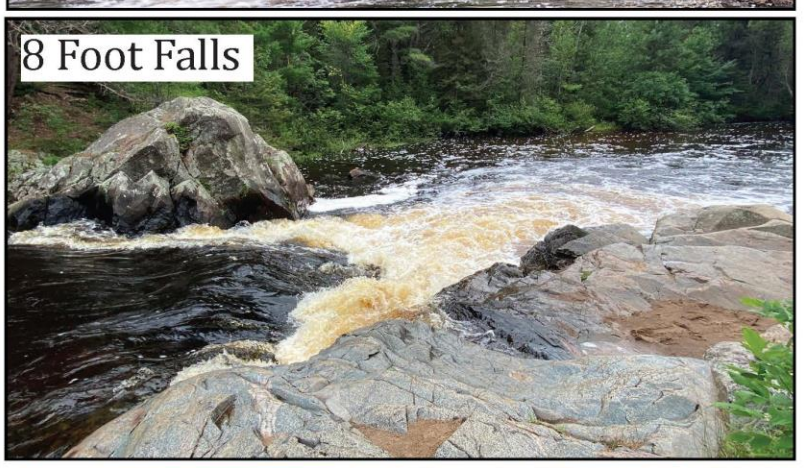
MARINETTE COUNTY OPENING DAY:
May 1..... All Parks, Cabins and Lodges

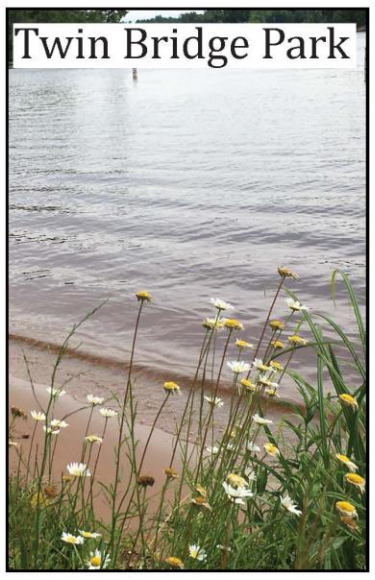
MARINETTE COUNTY CLOSING DAY:

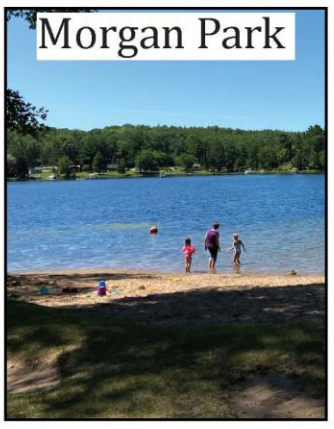
October 15..... Twin Bridge Park and Lake Noquebay Beach House. Potable Water Towers at Morgan and Goodman Parks
November 1..... All Lodges
November 30.....All Parks and Cabins

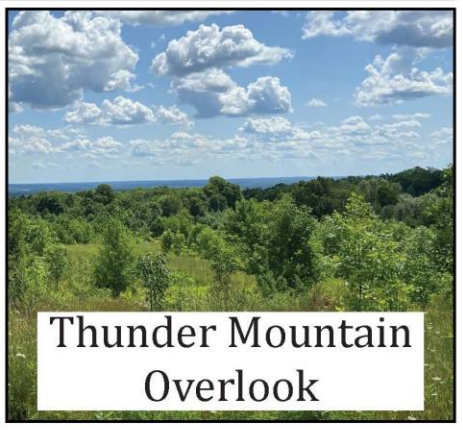
*some parks may close earlier due to inclement weather

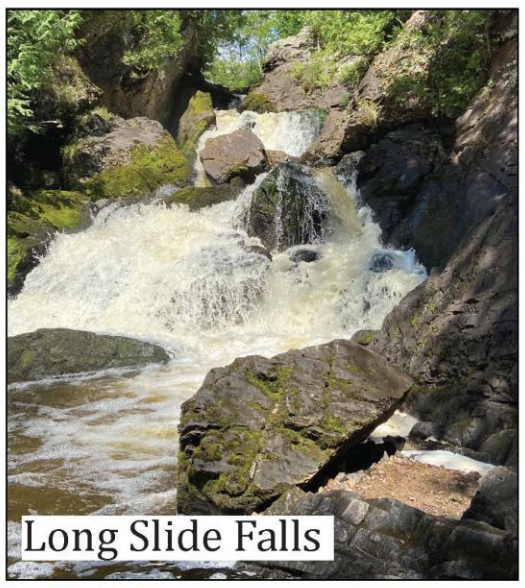


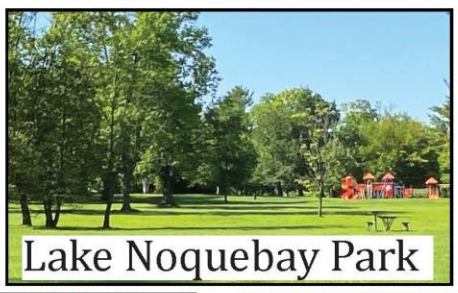


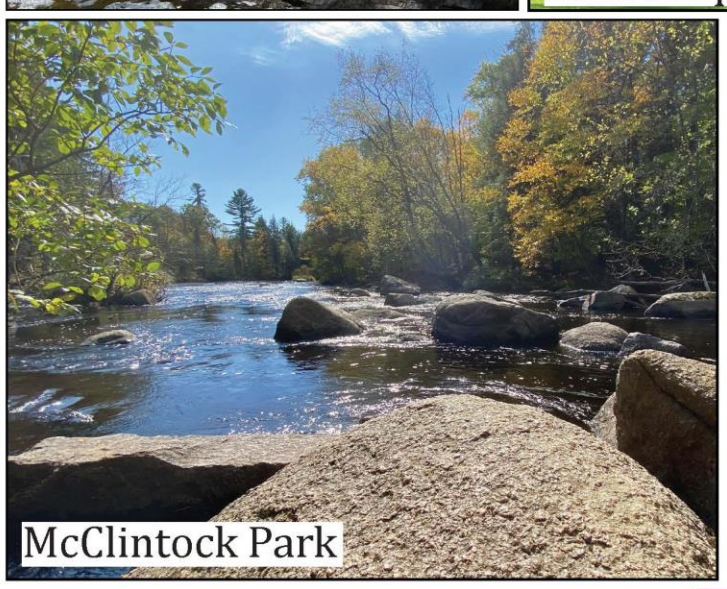


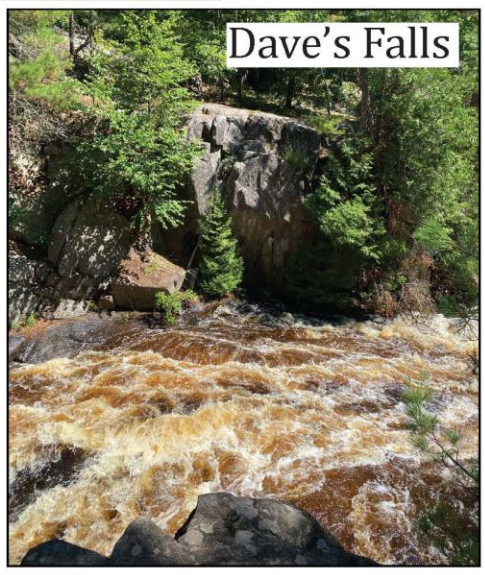


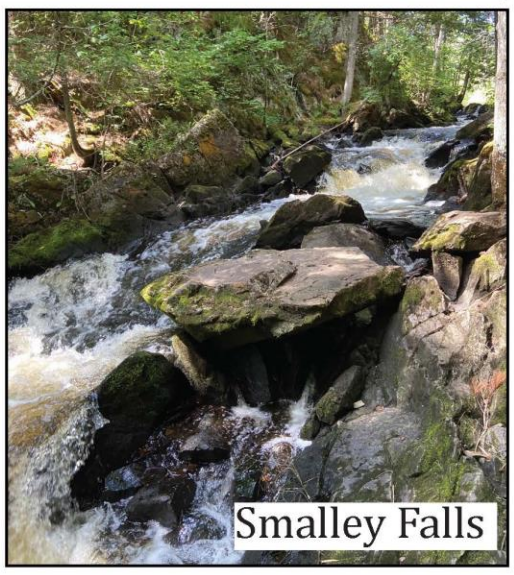












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Parks and Campgrounds

Contact the Parks office at 715-732-7531 or visit the website at
https://www.marinettecounty.com/departments/parks/general-information/campgrounds-and-parks/

Opossums and Gardening – A Few Things to Know

https://blog.nwf.org/2014/07/opossums-and-gardening-a-few-things-to-know/

The opossum is one of the most frequently encountered U.S. wildlife species, showing up in woods and swamps, plains and marshes, cities and suburbs - and in backyard gardens, where it may play some important roles in controlling garden pests and even in limiting ticks.

It may look like a big, grayish-white rat, but truly the opossum is something special in the realm of North American wildlife. Its ancestors can be traced back roughly 65 million years, to physically similar animals that lived in the shadow of the dinosaurs and probably fed on dinosaur eggs. Any creature that lasts that long with the same body plan is doing something right. The only U.S. marsupial, the Virginia opossum - named after the region in which Europeans first encountered it - has endured because its behavior is highly flexible - it can eat almost anything and find shelter almost anywhere.

Here are a dozen highlights you may enjoy about this neighborly species, which shares with you the habitat it has lived in for hundreds of thousands of years:

1. The Virginia opossum is about the size of a house cat (making it the largest of the Western Hemisphere's 100-plus opossum species), with a naked, scaly tail; a long, pointed face; a pink or reddish button nose; and leathery, rounded ears like the leaves of a geranium.

2. The opossum gives birth to bumble-bee-sized young in an almost embryonic stage of development but capable of crawling along the mother's body to her pouch, a characteristic of all marsupials, from kangaroos to wombats. In the pouch, each young latches on to one of thirteen teats, remaining attached until ready to leave the pouch in about 11 weeks. As they mature, the young continue clinging to the mother's hair and using her for transportation.

3. The opossum's tail is *prehensile*, meaning it can wrap around and hold on to tree limbs, an aid in climbing. Young ones may hang by their tails, but adults are too heavy to do so.

4. *Virginia opossums show more variation in size* than almost any other mammal. Adult males can measure about 1 to 3 feet long from the tip of the nose to the base of the tail and weigh 1.5 to 14 pounds. Ranging from southern Canada down into Costa Rica, they reach their largest size in the north.

5. The name "opossum" is derived from an Algonquian word meaning "white animal."

6. Opossums are unusually *resistant to snake venom.* The bites of rattlesnakes and similar vipers usually aren't fatal or even harmful to them.

7. Unlike skunks and raccoons, opossums are *not prone to rabies infections.*

8. Virginia opossums eat almost anything, from bird eggs to acorns, from slugs and frogs to fruit.

9. As is typical for marsupials, opossums possess a rudimentary brain, about a fifth the size of a raccoon's.

10. Adult opossums are solitary and nocturnal - active at night - and generally live in burrows and cavities that they find ready-made rather than create themselves. They seek shelter underground, in trees or anywhere in between.

11. When frightened or harmed, opossums go into a sort of torpor, lying still as death - the famous act of "playing 'possum." But they are not exactly playing. They have no control over this response, which could be said to paralyze them with fear. Their lips draw back, revealing their teeth in a sardonic grin, and anal glands spew a foul-smelling fluid that deters potential predators.

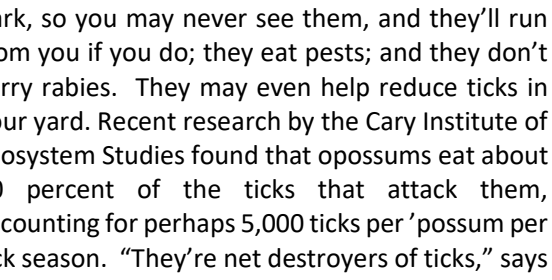
If left unharmed, a catatonic opossum will recover in roughly one to four hours. Younger opossums are less likely than mature individuals to play 'possum, but even older animals can't be relied on always to collapse in a confrontation - they may growl, bite or, most typically, flee - at a top speed of perhaps 7 miles per hour. Almost any predator can outrun them, which may be why playing 'possum evolved as a defense.

12. Opossum meat was historically a favored food in the Deep South, and 'possum grease was used in traditional medicine as a chest rub for respiratory ailments.

Opossums and Gardening

As omnivores, opossums will police your garden, feeding on insect pests, garden slugs, rodents, toads, snakes and even dead animals that might otherwise rot in place. They may pose an occasional threat to garden fruits and vegetables, but they tend to prefer plant matter that is starting to rot, so chances are they will help clean up, rather than clean out, your garden. If a 'possum does take up residence in your yard and dine on plants you consider off limits, you can use the following measures to stop it:

- If an opossum dens under your house or other structures, block its entryway with wadded newspaper during the day, when the animal is sure to be inside. After sundown, check to see if it has pushed out the paper - if so, you know it is no longer inside, and you can cover the entrance with wire mesh or some other material that will block the animal. Another way to be sure the 'possum is away is to put a layer of flour along the ground outside the entrance, then look for footprints after dark.

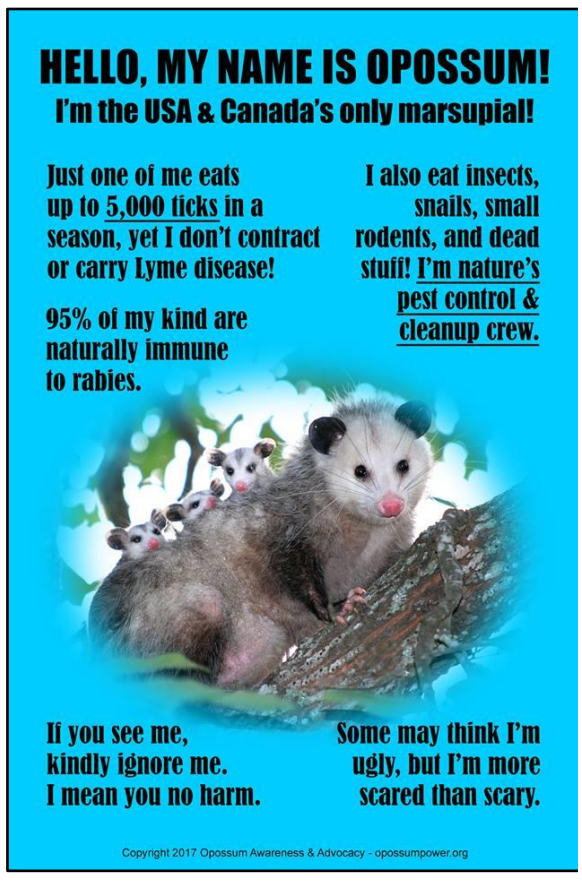


- You can try several sprays that discourage opossums. Squirt some liquid soap into a quart of water and then add a cup of molasses or hot sauces and chopped hot peppers or mustard, and spray plants with one of these concoctions. The taste will drive away opossums. The hot stuff also will discourage squirrels.

- Some sources recommend putting moth balls into cavities and around plants from which you want to discourage opossums, but moth balls are toxic, so you should avoid this approach.

- Another suggestion is to put towels into a coffee can with holes punched through it. Saturate the towels with ammonia, put on the plastic lid and situate the can in a place from which you wish to banish opossums. Of course, given the aroma of ammonia, you might find yourself avoiding the area, too.

But in all, opossums are creatures with which you can probably live and let live - they come out after dark, so you may never see them, and they'll run from you if you do; they eat pests; and they don't carry rabies. They may even help reduce ticks in your yard. Recent research by the Cary Institute of Ecosystem Studies found that opossums eat about 90 percent of the ticks that attack them, accounting for perhaps 5,000 ticks per 'possum per tick season. "They're net destroyers of ticks," says Richard Ostfeld, a forest ecologist with the institute.



https://mothernatured.com/nature-crafts/halloween-nature-crafts/

Get crafty with natural materials

Head outside with your kids and collect a whole bunch of natural materials. Collect sticks, leaves, stones, seed pods, pinecones, sand and more. Once you have all your materials set out on a table, along with some basic craft binding items, let your children create something spooky with them. See examples of some of the crafts below!

Easy Pinecone Bats - www.firefliesandmudpies.com/pinecone-bats

To make this craft you will need:

- Pinecones
- Stiffened black felt
- Scissors
- Googly eyes
- Hot glue and hot glue gun

Directions:

- Cut a set of bat wings from the stiffened black felt.
- Slide the wings into the pinecone, then secure with hot glue.
- Snip a couple of bat ears out of the felt scraps. Slide them into the pinecone, then secure with hot glue.
- Attach the googly eyes to the pinecone with a dab of hot glue.
- If desired, snip two little fangs out of white card stock and attach with a tiny dot of hot glue.

Stick Spider Web - https://mothernatured.com/nature-crafts/stick-spider-web/

They are really easy to make and you only need a few things from in and around your home. Hang your spider webs on a tree in your back or front yard and watch them twirl around with the wind. This stick spider web can be tricky for little ones, especially at the start when you're threading the yarn around the first few sticks. As you move around the sticks though, the frame gets stronger and children are able to take over from that point. If you have older children, they can definitely do this by themselves.

To make this craft you will need:

- Sticks
- Yarn or wool
- Scissors

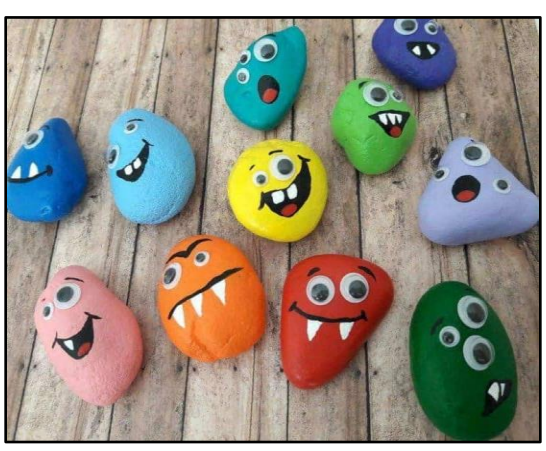
Directions:

- Collect sticks! The bigger the sticks the bigger the spider web will become. Bigger spider webs are harder to make.
- Overlap your sticks to make the spokes of the spider web.
- Place the yarn under the sticks and move the yarn diagonally between the gaps of two sticks and tie it. Move the yarn diagonally through a different gap between two sticks and tie it again. Do this until all the diagonals have been tied.
- It's now time to twist yarn around the sticks to make the spiral. Grab a long bit of yarn. Tie it in the middle of the spokes and make sure it's secure.
- Next, it's time to twist the yarn around each stick. It doesn't matter which way you twist it, just as long as the yarn goes around the stick and is pulled tight before moving onto the next stick. Be sure to keep the yarn close together at the start of the spider web and move wider as you head out towards the edges of the sticks.
- When you're nearing the tips of the sticks, tie it off. Tie some yarn or string from one of the stick edges to hang it up in a tree.

Halloween Monster Rocks - www.theinspirationedit.com/rock-stones-monster-craft/

To make this craft you will need:

- Rocks – gather these during walks with your kids or purchase a bag from the store
- Acrylic Paints (white, black and various colors)
- Paint Brushes
- Googly Eyes
- Glue



Directions:

- Clean your rocks to remove dust and dirt.
- Once your rocks are dry, paint them with various colors of acrylic paint. Holding the bottom of the rock works well. Wait for the paint to dry on one end and then paint the rest.
- Don't forget to flip your rock over and paint the back! Most of the rocks needed a few coats of paint (use a hair dryer to speed up the drying process if you wish).
- Use black paint and a small paintbrush to paint small mouth shapes onto your rock. Let the paint dry. Then use a small brush and paint white teeth and red tongues inside your monster's mouth.
- Glue on googly eyes. If you're using a strong glue such as E6000, an adult will need to do this step. The stronger glue will hold up to the elements much better than a white school glue. (If you won't be hiding your rocks, school glue would be fine).
- Try adding bows for girl rock monsters or yarn hair. The possibilities are endless!

Spooky Leaf Zombies - https://mothernatured.com/nature-crafts/leaf-zombie-craft/

Leaf Zombies are going to be creepy and the colors in the leaves really lend themselves to scary zombie faces. The green leaves give the zombies a Grinchy scary look and the orange and yellow leaves make the faces look like they're decomposing. Use leaves that have a few holes and munched edges and it will give your leaf zombie craft even more character!

To make this craft you will need:

- Leaves
- Paint
- Paint brushes

Directions:

- Clean the leaf off with a tissue.
- Paint the black sections of the zombie first. Add dark around the eyes, the dark in the mouth, any stitches, wrinkles and a nose. Let dry.
- Next, paint on the white eyeballs and teeth.
- Add the finishing touches to your leaf zombie by painting snot coming out of the nose, or add green to teeth to make them look rotten. You can also add red to make the eyes look blood shot. So creepy!
- Hang your leaf zombie crafts around your home on Halloween. They'd be perfect made into a garland and hung at your front door. It's a fun way too spook little trick-or-treaters!

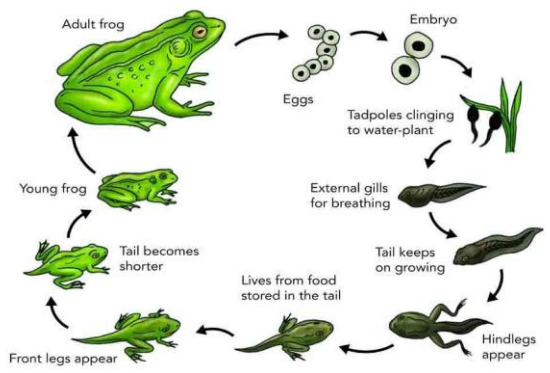
Visit the website at the beginning of the article for links to all 21 crafts. *Happy Halloween Crafting*!

Tricks of Symbolic Halloween Critters

https://blog.nwf.org/2016/10/tricks-of-symbolic-halloween-critters/

Halloween draws out superstitious imagery of twinkling jack-o-lanterns, eerie cobwebs, and best of all – ghoulish costumes. It is a time when we can dress up and scare the living daylights out of one another. Yet, wildlife prove that a birthday suit is the only costume needed to rule the holiday. Meet some of these tricky Halloween-themed critters who have a few natural ruses of their own.

Frogs - For thousands of years frogs have been associated with folklore, sorcery, and wizardry. Most commonly associated with witches for potions of poison and aphrodisiacs, these tricksters of the wild have the unique ability to transform their entire bodies from a water dwelling species into an air-breathing amphibian. This metamorphosis from tadpole to frog symbolizes revolution and the recreation of life. But how do gills evolve into air breathing lungs?



Tadpoles transform in a matter of months; growing beyond their gelatinous eggs and entering into the muddy waters of the predatorial abyss. Propelled by their tails, they begin their life by breathing through their gills. After 10 weeks, they develop legs, distinctive tongues, and their tails begin to recede. The whole process takes 3 months before they are prepared for their next journey onto land.

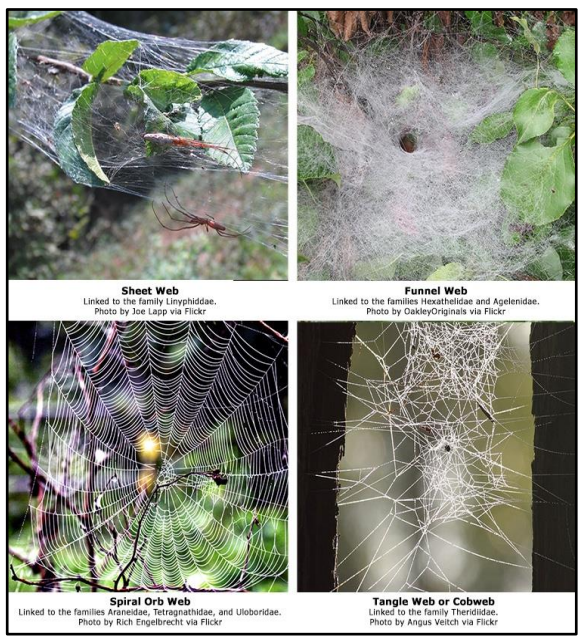
Bats - No Halloween is complete without creatures of the night, and Mother Nature doesn't disappoint. The epitome of wildlife symbolism in Halloween is the bat. But life in the shadows is not the only trick this mammal has up its sleeve. They can pinpoint objects as thin as human hair in complete darkness via echolocation.

Echolocation, a language of sound and refraction, is the use of sound waves and echoes to determine where objects are in space. Bats produce a sound that echoes and bounces off objects, transferring the sound back into the bats ears. They use this revolutionary sound system to determine size, shape, and location of prey and other objects.

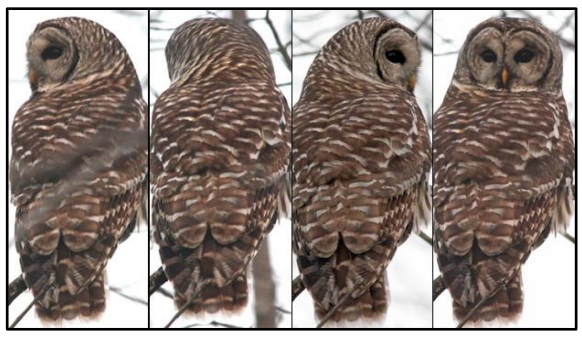
Science often takes tips from the animal kingdom. The development of sonar and radar navigation used by the military is based on bat echolocation. The main difference is that sonar is used underwater, though the principals are the same.

Spiders - Spawning from the German word "spinne", the name spider means "spinner". These creatures are considered to be endowed with superstitious qualities, predominantly due to their ability to weave webs - a symbol of mystery, protection, fate, and death.

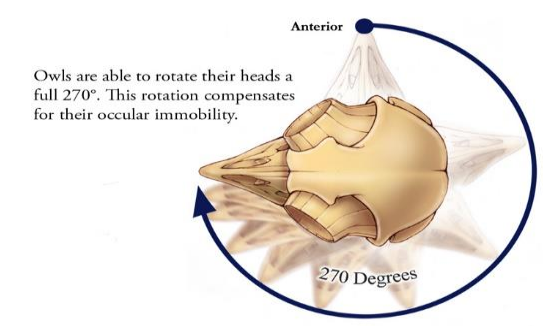
Spiders create silk for many purposes: to capture their prey, protect their offspring, and provide shelter. Also, not all spiders use silk the same way. Did you know spiders can weave different kinds of webs? Different webs include spiral orb, tangle or cobwebs, funnel webs, and sheet webs. Spider silk is oddly lightweight. A strand long enough to circle the world would weigh the same as a bar of soap. Here are a few examples of different webs:



Owls - Another commonly nocturnal species associated with Halloween are owls. Though it's a myth that they can rotate their necks 365 degrees, **they can rotate their necks 270 degrees**. This goes to show what a 'hoot' owls really are.



Because their eyes are tubular, giving them telescope vision, they cannot easily move their eyes. But how do they spin their heads without snapping their necks, tearing their arteries, or forming blood clots? Unlike human anatomy, owl's vertebrae contain air sacs that cushion the twisting head. Where blood vessels in humans get smaller as they become branched, owls get larger.



(https://www.livescience.com/26771-how-owls-rotate-heads.html)

A Handful of Salamanders?

One of our Land Information staff members found this handful o' blue-spotted salamanders under a cinder block he moved while digging a root cellar.

Salamanders are the most secretive group within Wisconsin's amphibian community. Seven species reside in the state, but most go entirely undetected by humans. Most adult salamanders are terrestrial and return to aquatic habitats only for breeding. Above are blue-spotted salamanders, one of the most common species in Marinette County and throughout the state.

This time of year, salamanders go below ground to hibernate by either modifying existing animal burrows, following crevices in rock, soil, or root channels, or remaining under a deep layer of organic material/debris (such as dead leaves, fallen trees/logs, etc.) to avoid freezing. This is similar to hibernation, but the term "brumation" is used for cold-blooded animals, or animals that are not able to control their body temperature.

This blue-spotted salamander was found under bark mulch in a home garden in mid-April.

In early spring, salamanders emerge from the ground and move to breeding ponds. This migration often coincides with the earliest warm, spring rains and occurs at night. They make their way to *vernal ponds*, which are typically wooded areas that are temporarily water-filled from the snow melt and spring rain. Vernal ponds often dry up later in the year, so this makes them exceptional nurseries for amphibians because they do not support fish, which would eat the eggs and larvae.

Salamanders mate in pairs or in groups, and the female will lay the eggs on sticks or leaves in the water. After mating, most species leave the eggs and return to solitary living.

Most salamander eggs hatch into larvae that have external gills and are aquatic. The larvae spend a few months in the water and are predatory, feeding on mosquito larvae, snails, and other insects and invertebrates. As they develop, they lose their external gills and eventually are able to live on the land as well as in the water.

Excerpts & information from: https://www.htrnews.com/story/life/2020/04/25/salamanders-wisconsin-what-know-secretive-amphibians/3010872001/ and https://dnr.wi.gov/.